

VERBASCUM DENSIFLORUM IN SOUTHEAST WISCONSIN

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ABSTRACT

Nine of 260 species of the Eurasian genus *Verbascum* have been reported from America; only two (*V. thapsus* and *V. blattaria*) are common. *Verbascum densiflorum* is well established in the U.S. only in southeast Wisconsin where it is an aggressive weed. It differs morphologically, phenologically and ecologically from either *V. thapsus* or *V. phlomoides*, the two more common species which it superficially resembles.

Key Words: *Verbascum*, adventive weed, restricted range

Verbascum is a Eurasian genus of over 260 species. Nine species (*V. thapsus* L., *V. blattaria* L., *V. phlomoides* L., *V. lychnitis* L., *V. phoeniceum* L., *V. virgatum* Stokes, *V. nigrum* L., *V. sinuatum* L. and *V. densiflorum* Bertoloni) have been reported from North America. These nine mullein species are among the most widespread of *Verbascum* species in Europe and Asia (Murbeck, 1939). Two hundred species of *Verbascum* are confined to a relatively small area in Greece, southern Yugoslavia, Bulgaria, Rumania, Turkey, Syria, Jordan, Iraq and northwest Iran. Only *V. thapsus* and *V. blattaria* are common throughout North America. *Verbascum sinuatum* and *V. densiflorum* have previously been reported only as rare waifs on ballast along the east coast (Gleason, 1952).

A large, well established population of *Verbascum densiflorum* (syn *V. thapsiforme*¹ Schrader) has been found in southeast Wisconsin. Within an area of about 30 square miles in Ozaukee and Washington Counties, Wisconsin (Figure 1) essentially 100% of the *Verbascum* is *V. densiflorum*. In three years I have never observed a *V. thapsus* growing in this zone. Surrounding this zone of exclusively *V. densiflorum* is an area of about 25 square miles in which both *V. thapsus* and *V. densiflorum* and some mixed populations are found. Outside of this area *V. densiflorum* is not found but *V. thapsus* is common.

¹*Verbascum thapsiforme* Schrader, Monogr. gen. Verb., 1 (1813) is the name in more common usage, but *V. densiflorum* Bertoloni, Rar. it. pl., (1810) is an older, and therefore, the valid species name (Ferguson, 1972).



Figure 1. Location of southeast Wisconsin population of *Verbascum densiflorum*.

In an average year, flowering individuals of *Verbascum densiflorum* in this area number in the thousands. The species has grown in this area for at least 17 years as documented by a 1967 specimen in the University of Wisconsin-Milwaukee Field Station herbarium. The species may well have been established in this area for a long time.

Verbascum densiflorum is distinct morphologically, phenologically and ecologically from either *V. thapsus* or *V. phlomoides*, the two more common species which it superficially resembles (Figure 2). *Verbascum densiflorum* is very similar to *V. phlomoides* except that the upper cauline leaves are distinctly decurrent down the stem in *V. densiflorum* and are not at all decurrent in *V. phlomoides*. The

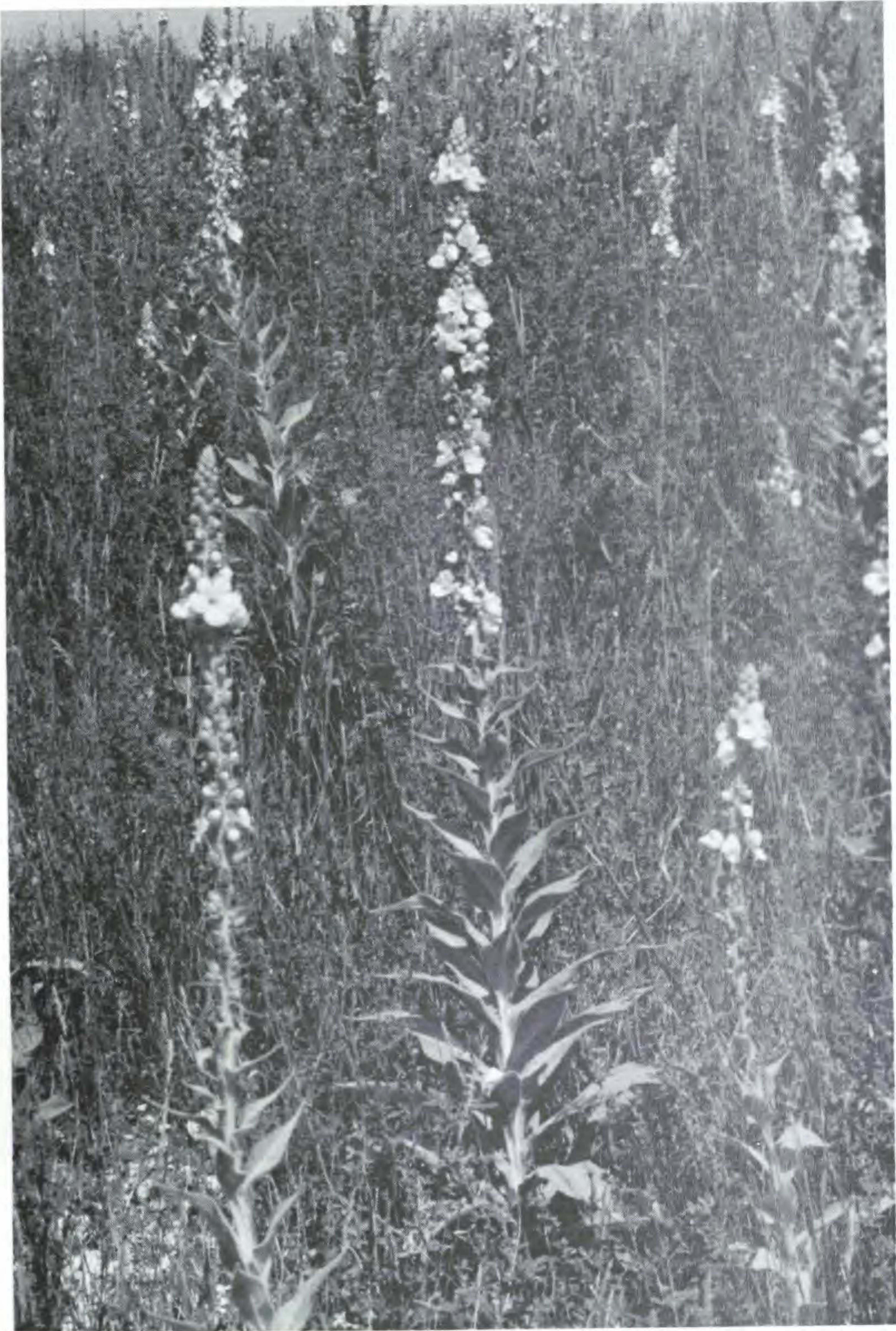


Figure 2. Population of *Verbascum densiflorum* at the University of Wisconsin-Milwaukee Field Station in Ozaukee Co., Wisconsin.

inflorescence of *V. phlomoides* is somewhat more open with more stalk being exposed between capsules than that of *V. densiflorum*. Also, the inflorescence bracts and upper cauline leaves of *V. densiflorum* tend to be longer acuminate than those of *V. phlomoides*.

Anderson (1947) described an Iowa City, Iowa population of *Verbascum phlomoides* and concluded that *V. phlomoides* and *V. densiflorum* (*thapsiforme*) are not separate species. *Verbascum phlomoides*, *V. thapsus* and sterile hybrids between the two species were collected from the Iowa City population by the author during the summer of 1983. Hybrids form readily between *V. thapsus* and *V. phlomoides* (Wagner, Daniel & Hansen, 1980) and are intermediate in the extent of leaf decurrence. Since Anderson (1947) described *V. phlomoides* as more or less decurrent and did not mention *V. thapsus* × *V. phlomoides* hybrids, the author is led to believe that Anderson may have been interpreting these hybrids as his *V. densiflorum*-like plants.

While *Verbascum phlomoides* and *V. densiflorum* are very similar they are unambiguously separated by the extreme leaf decurrence in *V. densiflorum* and complete lack of decurrence in *V. phlomoides*. Although hybrids can occur naturally between *V. densiflorum* and *V. phlomoides* (Murbeck, 1933), the hybrids are always infertile, indicating that these are separate species.

Verbascum densiflorum differs morphologically from *V. thapsus* in having much larger flowers (25–45 mm diam.), a spatulate rather than capitate stigma, and a longer, less crowded inflorescence. *Verbascum densiflorum* tends to branch more freely producing many inflorescence spikes, and its leaves tend to be more dentate and more acuminate. Hybrids also occur naturally between *V. densiflorum* and *V. thapsus*, but are completely infertile (Murbeck, 1933).

Verbascum densiflorum differs from *V. thapsus* in its flowering phenology. In southeast Wisconsin *V. thapsus* blooms from late June to late August, while *V. densiflorum* begins to bloom in early July and continues until the time of a hard frost (often mid- to late October).

Verbascum thapsus and *V. densiflorum* in Wisconsin also differ ecologically. *V. thapsus* can often be killed by cutting after it has bolted; however, *V. densiflorum* is able to withstand repeated cutting with plants branching from the base and growing many

shorter inflorescence stalks. Repeated cutting can delay flowering but the plants usually survive to flowering even if mowing continues for 3 or 4 years. Because of its ability to withstand mowing, *V. densiflorum* is a much more aggressive weed in agricultural land in Ozaukee and Washington Counties, Wisconsin than is *V. thapsus*. Populations are quite common even in regularly mowed hay fields or sparse, weedy lawns.

It is curious that this species, which occurs nowhere else in North America, here appears to be a more aggressive weed than *Verbascum thapsus*. Thousands of individuals grow in this 30-square-mile area to the apparent exclusion of the generally more common *V. thapsus*.

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